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1 4. (Amended) The method of Claim 1, wherein
2 [said] the alginate salt is prepared from an alginate
3 source selected from *Macrocystis pyrifera* and *Laminaria*
4 *hyperborea*.

1 5. (Amended) The method of Claim 1, wherein
2 [said] the source of calcium ions is selected from the
3 group consisting of calcium carbonate, calcium sulfate,
4 and calcium sulfate dihydrate.

1 6. (Amended) The method of Claim 1, wherein
2 [said] the calcium releasing compound is D-glucono- δ -
3 lactone.

1 7. (Amended) The method of Claim 1, wherein
2 [said] the source of calcium ions is calcium carbonate
3 and [said] the calcium releasing compound is D-glucono- δ -
4 lactone, and wherein the molar ratio of [said] the
5 calcium carbonate to [said] the D-glucono- δ -lactone is
6 0.5.

1 8. (Amended) The method of Claim 1, further
2 comprising the step of implanting [said] the three-
3 dimensional crosslinked hydrogel system.

1 9. (Amended) The method of Claim 1, wherein
2 [said] the three-dimensional crosslinked hydrogel system
3 has a thickness of between about 4 mm and about 8 mm, and
4 a diameter of approximately 18 mm.

1 10. (Amended) The method of Claim 1, wherein
2 [said] the three-dimensional crosslinked hydrogel system
3 has a calcium ion to carboxyl molar ratio of 0.27.

1 11. (Amended) A method for tissue engineering
2 in vitro, the method comprising the steps of:
3 (a) providing

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- 4 i) cells,
5 ii) an alginate salt,
6 iii) a source of calcium ions, and
7 iv) a calcium releasing compound;
8 b) mixing [said] cells, [said] an alginate
9 salt and [said] a source of calcium ions to provide a
10 mixture;
11 [c) adding [said] a calcium releasing compound
12 to [said] the mixture to provide a crosslinked hydrogel;
13 and
14 [d) culturing [said] the crosslinked gel to
15 provide a three-dimensional crosslinked hydrogel/cell
16 system for growing [said] the cells in vitro.

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CONT.

1 12. (Amended) The method of Claim 11, wherein
2 [said] the alginate salt is selected from the group
3 consisting of sodium alginate and potassium alginate.

1 13. (Amended) The method of Claim 11, wherein
2 [said] the alginate salt is prepared from an alginate
3 source selected from *Macrocystis pyrifera* and *Laminaria*
4 *hyperborea*.

1 14. (Amended) The method of Claim 11, wherein
2 [said] the source of calcium ions is selected from the
3 group consisting of calcium carbonate, calcium sulfate,
4 and calcium sulfate dihydrate.

1 15. (Amended) The method of Claim 11, wherein
2 [said] the calcium releasing compound is D-glucono- δ -
3 lactone.

1 16. (Amended) The method of Claim 11, wherein
2 [said] the source of calcium ions is calcium carbonate
3 and [said] the calcium releasing compound is D-glucono- δ -
4 lactone, and wherein the molar ratio of [said] the

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5 calcium carbonate to [said] the D-glucono- δ -lactone is
6 0.5.

1 17. (Amended) The method of Claim 11, further
2 comprising the step of implanting [said] the three-
3 dimensional crosslinked hydrogel/cell system.

1 18. (Amended) The method of Claim 11, wherein
2 [said] the three-dimensional crosslinked hydrogel/cell
3 system has a thickness of between about 4 mm and about 8
4 mm, and a diameter of approximately 18 mm.

1 19. (Amended) The method of Claim 11, wherein
2 [said] the three-dimensional crosslinked hydrogel/cell
3 system has a calcium ion to carboxyl molar ratio of 0.27.

1 20. (Amended) The method of Claim 11, wherein
2 [said] the cells are osteoblasts.
Please add the following new claims:

1 21. The method as defined in claim 1, further
2 comprising the step of selectively controlling the
3 hydrogel system to a predetermined size by varying the
4 calcium ion concentration.

1 22. The method as defined in claim 21 wherein
2 the hydrogel system swelled at calcium ion concentrations
3 between about 0.0005 M and about 0.0010 M; wherein the
4 hydrogel system shrank at a calcium ion concentration of
5 about 0.0040 M; and wherein the hydrogel system remained
6 substantially the same size at calcium ion concentrations
7 between about 0.0020 M and about 0.0030 M.

1 23. A method for preparing a three-dimensional
2 hydrogel system, the method comprising the step of:
3 adding a cation-releasing compound to a mixture
4 of at least one hydrophilic polymer and a source of

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cont.

5 cations to provide a three-dimensional crosslinked
6 hydrogel system.

1 24. The method as defined in claim 23, wherein
2 the hydrophilic polymer is an alginate salt, the source
3 of cations is a source of calcium ions, and the cation-
4 releasing compound is a calcium-releasing compound.

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1 ~~Sub B3~~ 25. The method as defined in claim 24 wherein
2 the alginate salt is selected from the group consisting
3 of sodium alginate and potassium alginate.

1 26. The method as defined in claim 24, wherein
2 the source of calcium ions is selected from the group
3 consisting of calcium carbonate, calcium sulfate, and
4 calcium sulfate dihydrate.

1 27. The method as defined in claim 26 wherein
2 the calcium releasing compound is D-glucono- δ -lactone.

1 28. The method as defined in claim 27 wherein
2 the source of calcium ions is calcium carbonate, and
3 wherein the molar ratio of the calcium carbonate to the
4 D-glucono- δ -lactone is 0.5.

1 ~~Sub B3~~ 29. The method as defined in claim 24 wherein
2 the three-dimensional crosslinked hydrogel system has a
3 calcium ion to carboxyl molar ratio ranging between about
4 0.09 and about 0.9.

1 30. The method as defined in claim 29 wherein
2 the calcium ion to carboxyl molar ratio ranges between
3 about 0.18 and about 0.72.

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1 31. The method as defined in claim 24, further
2 comprising the step of selectively controlling the

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3 hydrogel system to a predetermined size by varying the
4 calcium ion concentration.

1 32. The method as defined in claim 31 wherein
2 the hydrogel system swelled at calcium ion concentrations
3 between about 0.0005 M and about 0.0010 M; wherein the
4 hydrogel system shrank at a calcium ion concentration of
5 about 0.0040 M; and wherein the hydrogel system remained
6 substantially the same size at calcium ion concentrations
7 between about 0.0020 M and about 0.0030 M.

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1 SUB
2 B5 33. The method as defined in claim 23, further
3 comprising the step of culturing the three-dimensional
crosslinked hydrogel system for growing cells in vitro.

1 34. A three-dimensional crosslinked hydrogel
2 composition, consisting essentially of:
3 at least one hydrophilic polymer;
4 a source of cations; and
5 a cation-releasing compound.

1 SUB
2 B5 35. The composition as defined in claim 34,
3 wherein the hydrophilic polymer is an alginate salt
4 selected from the group consisting of sodium alginate and
5 potassium alginate; wherein the source of cations is a
6 source of calcium ions selected from the group consisting
7 of calcium carbonate, calcium sulfate, and calcium
8 sulfate dihydrate; and wherein the cation-releasing
compound is D-glucono- δ -lactone.

1 36. The composition as defined in claim 35
2 wherein the source of calcium ions is calcium carbonate,
3 and wherein the molar ratio of the calcium carbonate to
4 the D-glucono- δ -lactone is 0.5.

1 37. The composition as defined in claim 35
2 wherein the three-dimensional crosslinked hydrogel system